R E P O R T R E S U M E S

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A STUDY OF THE RELATIVE EFFECTIVENESS OF THREE METHODS OF TEACHING READING IN GRADE ONE.

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DESCRIPTORS- *GRADE 1, BASIC READING, *BEGINNING READING, READING INSTRUCTION, *READING PROGRAMS, READING DEVELOPMENT, *READING COMPREHENSION, SPELLING, *ORTHOGRAPHIC SYMBOLS, PONTIAC, MICHIGAN

THE RELATIVE EFFECTIVENESS OF THREE APPROACHES TO BEGINNING READING WAS STUDIED. THE THREE APPROACHES WERE (1) PITMAN'S INITIAL TEACHING ALPHABET APPROACH (ITAA), (2) A MODIFIED LANGUAGE ARTS APPROACH WITH TRADITIONAL ORTHOGRAPHY (LAA), AND (3) A BASIC READER APPROACH (BRA). TWO INTERRELATED PROBLEMS WERE ALSO TREATED IN THIS STUDY--(1) THE EFFECTIVENESS OF THE ITAA WHICH WAS DESIGNED TO PROVIDE A SIMPLE AND MORE RELIABLE ALPHABET FOR CHILDREN AND (2) THE IMPORTANCE OF FOCUSING ATTENTION ON CHILDREN'S OWN THOUGHTS AND IDEAS TO DEVELOP SELF-CONFIDENCE IN READING. THE STUDY WAS CONDUCTED IN 13 SCHOOL DISTRICTS IN MICHIGAN, WITH EACH DISTRICT DIVIDED INTO THREE SECTIONS, EACH USING ONE APPROACH. THE STUDENTS WERE PRETESTED AND AFTER 140 DAYS OF INSTRUCTION WERE POST-TESTED, AND THE TREATMENTS WERE COMPARED. INTERPRETATION OF THE TEST RESULTS SHOWED THAT NO ONE APPROACH WAS CONSISTENTLY SUPERIOR. THERE WERE, HOWEVER, DIFFERENT LEVELS OF ACCOMPLISHMENT AMONG THE THREE APPROACHES--(1) ITAA AND LAA CHILDREN DEVELOPED LARGER READING VOCABULARIES AND MORE EFFECTIVE USE OF THEIR POTENTIAL OF WORD ANALYSIS, (2) LAA CHILDREN MADE MORE EFFECTIVE USE OF THEIR INTELLIGENCE IN PARAGRAPH COMPREHENSION, (3) ITAA CHILDREN DEVELOPED A BROADER RANGE OF SKILLS FOR RECOGNIZING ISOLATED WORDS, AND (4) LAA AND BRA CHILDREN WERE BETTER SPELLERS. THE INVESTIGATOR CONCLUDED THAT, WHILE A FINAL, POSITIVE EVALUATION OF ITAA COULD NOT BE DRAWN FROM THIS STUDY, THE EMPHASIS ON STARTING WITH THOUGHTS AND IDEAS OF CHILDREN DID PRODUCE EAGER LEARNERS IN THE CLASSROOM. (PM)

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CHAPTER I

OBJECTIVES OF THE STUDY

PROBLEM

It is safe to assume that learning to read will never be a simple, uncomplicated process for many children. The act of perceiving printed symbols accurately together with thinking, feeling, reacting, relating, judging and using the ideas suggested by arbitrary orthographic devices is far too individually oriented to respond to one solution or plan of instruction. Those who have taken a firm stand on what should constitute the launching platform and fuel for propelling a lifetime reading habit into orbit must certainly recognize that the evidence to support their positions is still meager. There is a continuous need for researchers to examine the bits and pieces of the reading process. There is also a need for inspired, imaginative, research minded teachers to engage in studies of promising instructional practices which might be effectively incorporated into their daily classroom programs. Essentially, this project was concerned with the latter.

The primary purpose of this research was to examine the relative effectiveness of three approaches to beginning reading instruction. Two of these approaches, one using the initial teaching alphabet (ITA), and the other traditional orthography (TO), were designed to incorporate features of a modified language experience method of instruction which encouraged equal emphasis upon all communication skills --- speaking, listening, reading and writing --- and stressed the use of childrens' own experiences and language in

the early stages of the reading program. The third approach relied upon the materials and directions provided in basic reader programs used extensively in schools throughout the United States.

Two interrelated problems were treated in this study. The first concerned the use of the ITA, a new medium for reading instruction designed by Sir James Pitman to provide children with a simple and more reliable alphabet during their initial reading experiences. Would the use of the new orthography which was more consistent in its sound-symbol relationship, more logical in its left to right sequence, and less confusing in its written form provide children with a stronger and less baffling start in learning to read?

The second problem was concerned with the importance of focusing attention on young people's own thoughts, ideas and perceptions as well as the encouragement of self-expression, oral and written, to develop self-confidence in all language usage, including reading. Would a program which placed emphasis upon children's oral and written expression provide a fertile source of reading material and give young people a sound foundation for development of effective reading habits?

From the descriptions of instructional practices in programs using ITA in England (12) as well as in Bethlehem, Pennsylvanis (18), it seemed evident that many ITA teachers employed practices which were similar to those used by language experience teachers described in the Reading Study Project (5) conducted by San Diego County, California. The latter, however, used traditional print. It appeared that ITA and TO teachers in the three studies cited placed considerable emphasis upon self-expression. Both

groups were delighted with the interest and enthusiasm as well as the skill children demonstrated in creative writing activities during the first and second years in school. Comparable stress appeared to be placed upon early introduction of basic word attack skills as the young people expressed a need for them in writing. This contrasted with the delayed reading introduction common to basic reading programs. Equal emphasis also appeared to be placed upon much independent reading not only of tradebooks but also of written compositions of fellow students. The researchers, Downing (12) in England and Allen (16) in San Diego, expressed satisfaction with the self-confidence and independence the children developed, the number of books which were read and progress children made in learning to express their own thoughts.

This study was designed to avoid, in part, the problem of comparing an approach using ITA with one using TO developed with two different concepts of how children should be taught to read. The basic reading approach in TO was included as it was the most widely used method for teaching beginners and could well serve as a control group.

DEFINITION OF TERMS

The Language Arts Approach (LAA) was the method of instruction in which no sharp distinction was made between the reading program and other language skills including writing. Reading instruction was based on the oral and written expression as well as the identified needs of children rather than upon a series of books. Boys and girls were led to discover that their oral langu-

age reflected their thoughts, experiences and ideas which could be written and read. R. Van Allen (1) expressed the principles of this approach in these terms:

> What I think about, I can talk about.
> What I can say, I can write.
> What I can write, I can read.
> I can read what I write and other people can write for me to read.

For the purposes of this study, the LAA also included short intensive daily practice in the recognition of letter names, letter sounds, applied phonics and a meaningful vocabulary. Provisions were incorporated during the latter part of first grade to include opportunities for children to work together with a teacher on a story in order to develop a functional reading-thinking plan.

The Initial Teaching Alphabet Approach (ITAA) should more accurately have read:"An approach to reading instruction using ITA." The new alphabet is a medium for communication, not a method. The ITAA, used in this study, encouraged the use of language arts practices noted above with particular emphasis on the use of the blackboard to share ideas with other class members. Daily intensive drill activities intended to provide sound-symbol associations were also included during the first few months of school. Because of an anticipated sparcity of ITA reading materials, sets of ITA basic readers (The Downing Readers) published in England were employed. Transition to TO was anticipated when it became apparent that the student had mastered the simplified code.

The basic Reader Approach (BRA) was the method of instruction which employed a controlled vocabulary and provided teachers with a direct, systematic procedure for using a series of basic

textbooks and workbooks designed to insure a sequential organization and development of well defined basic reading skills. For this study no one particular series was chosen. However, all of the series used employed a reading readiness program, and advocated a gradual and sequential development of word attack skills.

OBJECTIVES

The study was designed to test the hypothesis that there would be no difference, significant at the .05 level as measured by standardized test, in the effectiveness of three methods of teaching children to read in grade one.

It was intended that the study would seek to provide objective data to answer the following questions:

1. Will there be a significant difference in the measurable effectiveness of the three approaches at the close of 140 days of instruction?

    a. Will there be a difference between the measured achievement for ITAA and LAA?

    b. Will there be a difference between the measured achievement for ITAA and BRA?

    c. Will there be a difference between the measured achievement for LAA and BRA?

2. Will there be a difference in the measured achievement by boys and girls when intelligence scores are held constant?

3. Will there be a difference in the measured achievement of children whose birthdays were between January and June and those born between July and December?

4. Will there be a difference in the measured achievement of children with high, average and low intelligence scores?

5. Will there be a difference in the measured achievement of children with high, average and low reading readiness scores?

6. Will there be a difference in measured achievement of children from high, average and low socioeconomic neighborhoods?

7. Will there be a difference in the number of books read by the children in the three approaches?

8. Will there be a difference in the attitude towards reading of the children in the three approaches?

9. Will there be a difference in the attitude of parents towards reading in the three approaches?

10. Will there be a difference in the word attack skills of children in the three approaches?

STATISTICAL ANALYSIS

The data collected for this study was key punched on IBM cards. This information was programmed through the 1620 IBM Computer located in the Oakland Schools Data Processing Center.

In an effort to study the data collected, a variety of statistical procedures were employed:

...Analysis of variance was used to determine the overall effect of the three approaches used in the study. Essentially, this was intended to be a consistency test.

...The mean scores were computed for all of the data to provide basic information.

...The t test was applied to determine the levels of significance of the differences between mean scores.

...Product moment correlation coefficients were computed to determine the relationships between certain variables noted in the data.

...Coefficients were transformed to Fisher's Z to study the significance of the differences in correlations.

...Chi square provided a "goodness of fit" test making it practical to examine the significance of the differences in frequency distributions.

...Tests of dependence were used to study differences between boys and girls.

...Descriptive statistical data was used where it seemed appropriate.

CHAPTER II

RELATED RESEARCH

Concern for developing a simplified alphabet which would delay the introduction of the unique difficulties of English until young people had developed confidence, skill and security in reading is not of recent origin. Extensive experiments with Sir Isaac Pitman's simplified spelling, phonotypy, were conducted for six years, 1852-1858, in ten schools in Waltham, Massachusetts. Between 1866 and 1886, St. Louis experimented with a different spelling system. Although the researchers in these programs indicated that the studies showed children saved time in learning to read, interest in changing the orthography for beginners did not develop. In fact, the experiments went unnoticed in professional textbooks. Active work on simplified spelling continued in England and the United States during the early part of this century on a limited scale. Downing (12) indicated that the early experiments could be criticized on two counts: failure to make comparisons with children using traditional print, and lack of objective test data.

Current interest in Sir James Pitman's Initial Teaching Alphabet, a 44 character notational system, was generated with the organization of an extensive research program sponsored by London University's Institute of Education in association with the National Foundation for Research in England and Wales, under the direction of John Downing. Reporting on the use of ITA at the International

Reading Association Conference in 1963, Downing (12, p. 198) stated that tentative findings suggest that:

> Young people get through their beginning reading program faster.
> They can recognize more words in print.
> They can accurately read continuous English prose more readily.
> They can comprehend more continuous English in print.
> They can read faster.

Downing further cited tests given to experimental classes using ITA for less than two years to show that transfer from ITA to TO could be made effectively. Although only 40% of the seven classes tested had been taken off ITA books at the time, these children made significantly higher scores for accuracy and comprehension in reading conventional alphabet and spelling than those who had been taught with traditional print. Downing has continued to stress caution in evaluating the data which is being collected. Final report of the London University project has not been completed as of this date.

In 1963, Ford Foundation sponsored a study in Bethlehem, Pennsylvania under the direction of Albert Mazurkiewicz. Reporting on the first two years of study, Mazurkiewicz (18) found markedly different reading achievement between matched pairs of pupils. Young people using ITA made statistically significant higher scores on the vocabulary subtest of the California Reading Test.

In current reports in ITA studies, it was difficult to determine the factors which contributed to differences which were reported. The teacher enthusiasm for a new and different approach was certain to be a factor. There was also evidence of the incor-

poration of new teaching practices not normally used with basic readers.

Language development has been another source of concern in recent years. Walter Loban (17) at Oakland, California has been investigating the language patterns of 338 children with varied backgrounds, intellectual ability and socioeconomic levels in a monumental longitudinal study from kindergarten through grade twelve. He found that language proficiency may be culturally as well as individually determined. In his conclusions Loban noted:

> ...elementary pupils need many opportunities to grapple with their own thought in situations where they have someone to whom they wish to communicate successfully.
>
> ...Competence in the spoken language appears to be a necessary base for competence in writing and reading.
>
> ...boys in this study do very poorly in language when they are low in language ability, and excel when they are high in language ability.
>
> ...If children reared in families at the least favored socioeconomic positions receive a restricted language experience, if their linguistic environment stresses only limited features of language potential, such children may indeed be at a disadvantage in school and in the world beyond school. (p. 88)

Strickland (22) found that children's language patterns at the time of school entry were far more sophisticated and interesting than textbook writers would have us believe.

R. Van Allen (5) directed a five year investigation of three approaches to first grade reading instruction -- basic reader approach, individualized approach, and language-experience approach. He found that children taught through the language-experience methods made as much or more progress in reading, as measured by standardized

tests, than did children taught through the other approaches. One of the significant contributions of this study was the identification of some of the specific practices employed in a well organized language experience program.

Gertrude Hildreth (15), in support of the use of writing as an aid to reading, pointed to the wide use of this procedure in other countries. She believed that simultaneous training aided in memory of letter form and words, directed attention to structural elements, assisted in developing the habit of left to right movement, provided overt activity for restless pupils, promoted familiarity with word patterns, served to strengthen the association between word forms and meanings, and helped form the habit of sounding through the word, part by part. The latter technique had been found to be particularly useful to the ITA teachers this writer interviewed.

Sylvia Ashton-Warner (4), in her latest book, TEACHER, drew from her rich background in teaching five-year-old Maori Indian children to read in New Zealand, moving testimony of the importance of starting reading instruction with words which have intense, personal meaning for children. In discussing traditional reading practices, she stated:

> It is sad to say of the vocabulary of any set of reading books for an infant room that it must necessarily be a dead vocabulary. Yet I say it! For although the first quality of life is change, these vocabularies never change. Winter and summer, for brown race and white, through the loud mood and quiet, the next group of words, related or not to the current temper of the room, inexorable moves into place for the day's study. (p. 59)

As of this date, there is insufficient evidence of the effectiveness of the used simplified spelling practices in improving

beginning reading instruction. There is also a need for more studies to discover the value of a coordinated language arts approach to early reading experiences.

The research relevant to the reading readiness practices employed in all three approaches to reading instruction is cited by Durrell and others in the Boston University Journal of Education (13).

CHAPTER III

PROCEDURES

This study was designed to determine the relative effectiveness of three approaches to beginning reading instruction -- a modified language arts approach using Pitman's Initial Teaching Alphabet (ITAA), a modified language arts approach with traditional orthography (LAA) and a basic reader approach (BRA). An attempt was made to control, as closely as practical, two important variables: teachers and children. It is significant to note that all teachers in this study employed a relatively unfamiliar reading program and were given equal opportunity for intensive in-service education, released time to share promising practices, recognition for individual accomplishment, and similar benefits normally associated with a useful and provocative research program. The thirty-six teachers in the study had volunteered to participate. They selected the instructional approach they used. In the selection of groups of children for the study, concern was expressed for age, intelligence, socioeconomic backgrounds and reading readiness. The data reported in this chapter revealed that the three treatment groups were well matched and that there was little or no reason to equate differences between groups.

BACKGROUND

The study was conducted under the direction of the instructional staff of Oakland Schools, the Intermediate School District for Oakland County, with the cooperation of thirteen

local school districts and the Michigan State Department of Public Instruction.

Oakland County, bordering on the City of Detroit to the south, is the second most densely populated county in the state of Michigan. Within its limits are located a number of Michigan's large industrial enterprises, many small diversified industries, as well as extensive suburban residential areas. At the time of this study, twenty-eight school districts provided education programs for 210,000 children in the county.

A number of years prior to this study, Oakland Schools, together with a number of local districts, had initiated a study of methods of teaching children to read in first grade. At the time of the study, many of the districts were using supplementary phonics programs, programmed learning practices, perceptual-motor exercises, individualized reading plans, Word in Color, and similar programs intended to give another dimension to their traditional instructional practices. Through the work of Russell Stauffer of the University of Delaware, considerable interest had been generated in a language arts approach to reading. John Downing of the University of London, and Philip Hilaire, formerly teacher-counselor for the ITA Ford Foundation Project in Bethlehem, Pennsylvania, had stimulated curiosity and interest in the possibilities of using a simplified spelling system. Helen Murphy, of Boston University, in turn, spent four consecutive summers in week-long workshops instructing more than 600 first grade teachers in ways of developing readiness materials for strengthening children's visual and

auditory skills. The school environment was prepared for the study which followed.

SCHOOL DISTRICTS

Thirteen school districts volunteered to provide the twelve research teams needed for the research. These districts included: Birmingham, Bloomfield Hills, Clarenceville, Farmington, Hazel Park, Madison Heights, Lamphere, Oak Park, Pontiac, Royal Oak, Troy, Walled Lake, and Waterford.

A research team consisted of a local project director, three teachers (one for each approach), three school principals with one first grade classroom for each of the three schools. Hazel Park and Madison Heights, neighboring districts, agreed to form one team. Clarenceville, a relatively small school district had all of the classrooms within one building. The latter proved to be a useful exception. Data on each of these twelve teams was prepared for the Appendix.

Participating schools in the district were selected by local administrators to provide three comparable socioeconomic groups. However, there were personal factors which had to be considered including the interests of principals and teachers within the schools identified for the study.

To insure a range of socioeconomic levels within this study, a few of the districts were invited to choose groups from relatively low socioeconomic areas while others selected relatively high ones. This information was recorded in the study.

TEACHERS

Among the teachers who expressed an interest in this study, local school administrators were asked to select those who had done superior work in teaching the previous group of children during the previous year. This was necessarily a subjective appraisal. However, it was anticipated that many highly competent and interested teachers would be among those chosen. There was no reason to be disappointed with this procedure.

On Table I basic information regarding the thirty-six teachers employed in this study is recorded: All were women.

TABLE I

Participating Teacher Data

	ITAA	LAA	BRA
Age (years)	43.0	37.0	43.4
Years of experience	15.0	9.8	13.2
First grade experience	7.8	6.3	9.8
Children of own	1.3	1.1	1.6
Absences (days)	4.5	5.6	5.0

LAA teachers were somewhat younger than the teachers in the other two approaches and they had fewer years of experience. The BRA teachers had the most experience in first grade. It might also be noted that the average teacher in this study had completed her work for a Bachelor's Degree, and most were working toward or had completed a Master's Degree.

It was noted earlier that the teachers were invited to

select the approach they used. This made the study reported on Table II particularly interesting. All of the teachers were given the San Diego Teacher Inventory of Approaches to Teaching Reading early in February, 1965. The significance of the differences in total scores for each group was reported on Table II. A breakdown of this information is shown on Table III.

TABLE II

Study of Mean Scores of Teacher Responses on TEACHER INVENTORY OF APPROACHES TO TEACHING OF READING

APPROACHES	MEANS			t TESTS		
	ITAA	LAA	BRA	ITA-LA	ITA-BR	LA-BR
Basic	40.07	35.04	44.38	8.67*	7.83*	18.73*
Individualized	43.60	45.23	38.77	4.58*	10.98*	17.25*
Language Experience	40.87	48.18	33.86	17.25*	14.11*	34.33*

* Significant at the .001 level

The data showed that ITAA teachers leaned more towards the Basic Reader Approach than the LAA teachers. ITAA teachers also leaned more towards the Individualized and Language Experience approaches than BRA teachers but not LAA. LAA teachers had significantly higher responses for Individualized and Language Experience approaches while the BRA teachers were much higher in the Basic Reader Approach. It would appear the the ITAA teachers took a position between the other two approaches. This was apparent in subjective appraisals of classroom practice.

Among the twelve ITAA teachers there was one who became disenchanted with the simplified alphabet early in the school year. She worked with children in one of the higher socioeconomic groups.

TABLE III

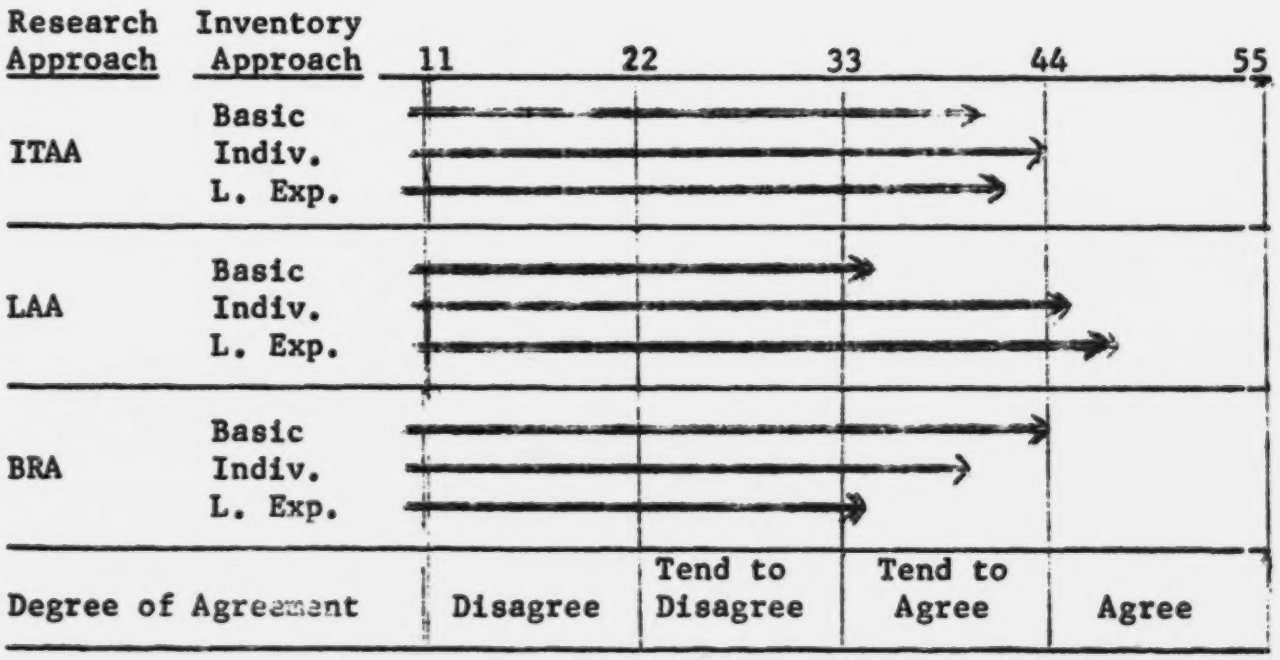
TEACHER INVENTORY OF

APPROACHES TO THE TEACHING OF READING

(Prepared by San Diego County School Office)

	ITAA			LAA			BRA		
	a	b	c	a	b	c	a	b	c
Research Team #1	42	40	38	28	48	50	51	31	18
Research Team #2	36	50	52	32	43	47	40	38	29
Research Team #3	40	39	40	33	44	42	44	30	30
Research Team #4	48	47	46	37	50	51	44	40	35
Research Team #5	48	38	36	35	44	52	51	46	41
Research Team #6	44	38	38	42	40	42	47	39	38
Research Team #7	41	46	40	43	41	47	48	43	35
Research Team #8	46	49	46	20	51	53	30	42	36
Research Team #9	42	46	41	35	47	48	40	45	38
Research Team #10	37	36	29	40	46	46	48	29	29
Research Team #11	38	45	36	35	46	55	36	43	41
Research Team #12	18	51	48	41	41	44	48	40	37
Totals	480	525	490	421	541	577	527	466	407
12 Research Teams	40	44	41	35	45	48	44	39	34

a: Basic
b Individualized
c Language Experience



Among the LAA teachers, a small number had difficulty breaking away from basic reading practices. In most instances, however, teachers in all three approaches were committed to the program they had selected, and engaged in this project with vigor and enthusiasm.

PUPILS

Heterogeneous groups of children normally found in the classrooms of Oakland County were involved in this study. Some concern was expressed for children in ITAA, but practically all of the fears of parents were allayed by arranging for orientation meetings before or immediately after the term began. Previous records of other first grade classes within a given school provided the clue as to how closely the three treatment groups within a research team would be matched.

On Table IV some pertinent information regarding basic information of children in the three groups was recorded.

TABLE IV

Basic Information on Boys and Girls
Who Participated in this Study

	ITAA	LAA	BRA
Boys	153	150	166
Girls	141	153	147
Age in Sept.(months)	76.3	75.5	76.3
Average Absences	13.3	12.4	12.7
Class size (May, 1965)	26.0	26.5	27.9

The many similarities between the groups are reflected on this table. Further study of the three groups were made with a series of readiness tests and the Pintner-Cunningham Intelligence Test. This data is reported on Table V.

From the information on Table V it is evident that the three treatment groups were closely matched in terms of intelligence and reading readiness scores. Highly significant differences between ITAA and LAA-BRA were apparent from the Detroit Word Recognition Test. It was discovered that the ITAA class with the highest intelligence test scores had received extensive reading skill instruction in kindergarten. About 18 of this group were reading when school started. No attempt was made to eliminate these children from the studies which follow. Some of the highest test scores on the final tests were made by many in this classroom.

IN-SERVICE TRAINING

As all of the teachers employed in this study were involved in programs in which they had relatively little experience, the in-service program was viewed with interest by most participants. Late in August, the three groups met separately for one full week to study and discuss the programs which they would be using. This proved to be a spirited and exciting affair.

ITAA teachers had to learn the intricacies of the simplified spelling system. Daily practice and intensive instruction, periodically throughout the five days, gave them the confidence and skill needed. This group also examined practices for capitalizing

TABLE V

COMPARISON OF MEAN SCORES ON INITIAL TEST DATA

	ITAA		LAA		BRA		t Tests		
	Mean	S.D.	Mean	S.D.	Mean	S.D..	ITA-LA	ITA-BR	LA-BR
Phonemes	28.64	13.65	27.24	12.31	26.17	12.73	1.30	2.27	1.03
Cap. Letters	21.01	6.14	21.24	5.69	21.00	5.64	.63	.03	.69
L. C. Letters	16.49	6.36	16.71	5.73	16.53	5.61	.41	.08	.35
Tot. Letters	35.12	13.49	35.85	12.35	34.93	12.56	.69	.18	.90
Learn. Rate	9.17	4.45	8.82	4.03	8.47	3.94	.98	2.01*	1.07
Patt. Copy	10.96	6.17	10.20	5.61	9.87	5.61	1.58	2.25*	.69
Ident. Form	20.28	14.86	17.80	9.08	18.62	7.19	2.44	1.73	1.21
Word Meaning	10.12	3.16	10.10	2.83	9.72	2.97	.09	1.59	1.58
Listening	9.80	2.87	9.20	2.61	9.42	2.49	2.66*	1.72	1.07
Matching	8.04	4.06	7.53	3.87	7.88	3.63	1.53	.49	1.13
Numbers	13.54	5.01	12.88	4.04	12.82	3.86	1.75	1.97	.20
Copying	8.30	3.31	8.01	3.31	8.01	3.50	1.02	1.01	.01
Alphabet	10.62	4.38	10.99	4.06	10.94	3.96	1.05	.95	.13
R. R. Total	58.09	20.27	57.17	17.33	57.78	15.52	.59	.21	.46
Det. W. R.	19.32	16.03	8.82	9.33	9.45	7.91	3.38**	2.59**	.29
P.C. Int.	39.72	9.00	40.08	7.68	39.64	7.82	.51	.12	.70

* Significant at the .05 level

** Significant at the .01 level

on the assets of the new alphabet by discussing and demonstrating ways in which children could engage in many language arts experiences. It was noted, however, that the major interest of these teachers was quite evidently related to learning to use the new symbols.

Language arts teachers, intrigued with the ideas of Sylvia Ashton-Warner, TEACHER, and the work of Allen in the San Diego County Schools, were anxious to identify guidelines. The idea of capitalizing upon the experiences of children, eliminating reading readiness workbooks, pre-primers and other basic materials, was of considerable interest to the group but also a source of recurring frustrations. By the close of the week, most of the teachers were not too certain how young people would respond to a writing approach to reading, but they resolved to try.

Basic reader teachers were on firmer ground throughout the summer session. Consultants assisted in determining the practices which could be used most effectively with certain children and materials were prepared to make the first month of school a memorable experience. All appeared quite pleased with the new programs they planned to use.

The project staff scheduled ten half-day meetings with each of the three groups to discuss problems, share practices, prepare materials, visit classrooms, and work with qualified consultants. These meetings were well received and frank discussions of practices and procedures were in order. During the early sessions, ITAA teachers continued to show concern for skill in writing the new alphabet.

There was also a growing interest in the ability of children to express their ideas through writing. It appeared from the discussions which ensued that the ITAA teachers had an initial advantage in introducing children to the reading process.

The LAA teachers appeared to gain momentum slowly. Most had extensive experience with the basic approach and it was not easy to push aside basic reader practices. The meetings gave this group strong support for they offered many opportunities to share failures as well as successes. Without the old devices to evaluate children's growth, they expressed concern for the progress the boys and girls made. This concern began to disappear when the children demonstrated continuous interest in recording their own thoughts and ideas, and as new ways for expanding experiences became so much in evidence. LAA teachers soon became delighted with the independence, initiative and general interest of the boys and girls in writing, and later in independent reading.

TESTS

All of the tests used in this study were administered by the project directors staff, together with a number of local school district coordinators - all receiving comparable training and instructions. None of the testswere given by classroom teachers. However, these teachers served as monitors and test assistants. This was an important consideration in an attempt to gather comparable data.

The following tests were administered to all of the children in the study during the first few weeks of school. Because of the number and length of the tests used, this was an exhausting and somewhat

frustrating experience for all concerned. However, in the cooperative research proposal, it had been agreed that the readiness tests would be administered before the 140 day instructional period began. The initial tests were intended to study the similarities and differences among the children in the three approaches.

The tests administered in September, 1965 were:

1. The Pintner-Cunningham Primary Test of Intelligence, 1964 revision

2. Durrell-Murphy Diagnostic Reading Readiness Test
   Subtest included:

   Phonemes
   Capital Letter Names
   Lower Case Letter Names
   Learning Rate Test

3. Thurston Primary Mental Abilities Test
   Subtests used:

   Pattern Copying
   Identical Forms

4. Metropolitan Readiness Test
   Subtests (all)

   Word Meaning
   Listening
   Numbers
   Copying
   Alphabet
   Total Score

5. The Detroit Word Recognition Test was used with those young people who appeared to be ready or able to read. We gave approximately 107.

After 140 days of instruction, which occurred early in May, 1965, the following devices were administered by the Oakland Schools Instructional Staff:

1. Stanford Achievement Test, Primary I, Form X

   All subtests were administered: Word Reading, Paragraph Meaning, Vocabulary, Spelling, Word Study, and Arithmetic.

2. An Inventory of Reading Attitude prepared by San Diego

   County Department of Education was read to the young people.

Individual tests were given to a small random sample. These tests included:

1. The Gilmore Oral Reading Test
   Subtests for Accuracy and Rate of reading were used.

2. Fry Phonetically Regular Words, a word list enclosed in this study.

3. Gates Word Test, a word list also enclosed.

4. Karlsen Phonemic Words, a word list also enclosed.

PROGRAMS AND MATERIALS

The following description of the programs and materials used were intended to provide a brief summary of the procedures and practices employed in the three approaches.

INITIAL TEACHING ALPHABET APPROACH

The school districts participating in this study agreed to purchase approximately $500.00 worth of tradebooks, textbooks, charts, and other materials printed in ITA for use in the experimental classroom. This provided each ITAA teacher with a large number of different ITA books, most of them printed in England, for her exclusive use. At the time of this study, there were no ITA books or other materials in the school libraries.

A typewriter with ITA symbols was purchased for use by any

of the teachers in this project and was located at the county school office. The typewriter did not prove to be too useful - for the combined characters employed in the simplified spelling were too compact on one key of the typewriter. Teachers generally printed materials which they wanted duplicated.

Sets of Downing Readers and the recommended apparatus for these materials noted below, were purchased to provide each ITA teacher with a program which would supplement efforts to guide children's reading growth through capitalizing upon their experiences.

BASIC MATERIALS USED IN THE ITA STUDY

Downing Readers

PAUL	Book 1
SALLY	Book 2
HELLO AND GOOD-BYE	Book 3
UP THE TREE	Book 4
GOING TO SCHOOL	Revision Book A
COME HERE JET	Book 5
PAUL'S BIRD TABLE	Book 6
ZIP AND HIS CAR	Book 7
THE NEW HOUSE	Book 8
GET UP ZIP	Revision Book B

Downing Vocabulary Extension Series

WALK IN THE WOODS	Book A
BANDY'S FIRST JUMP	Book B
COME AND LOOK	Book C
DOWN TO EARTH AGAIN	Book D

Vocabulary Extension Series (Attached)

Apparatus for Downing Readers

- Large Wall Picture Book
- Large Sentence Book
- Picture Sentence Matching Cards
- Word-Building Cards
- Auditory Discrimination Cards
- Word-Word Matching Cards
- Large Word Flash Cards
- Character Matching Cards
- Interim Teacher's Manual to Downing Readers
- Teacher's Manual and Key to Books 1 - 8

Classroom Apparatus for ITA Program
ITA Sound-Symbol Cards
Handbook for Writing and Spelling, and Dictionary
Symbol Sound Teacher's Picture Display Cards
Teacher's Instruction ITA Program Learning Kit

Source: Initial Teaching Alphabet Publications, Inc.
20 East 46th Street
New York 17, New York

During the period of reading readiness, ITAA teachers were concerned with experiences which aided children in looking, listening, thinking, speaking and performing in a variety of child-centered activities . Their purpose was to promote visual and auditory perception, neuro-motor development, verbal facility, emotional adjustment, and those skills which are so important in discovering main ideas, locating significant detail, determining sequence of thoughts, drawing inferences as well as handling books. Many of these activities were suggested in the INTERIM TEACHER'S MANUAL of the Downing Reader Series.

Typical of all three approaches, the children were introduced to the various sounds and coding symbols. In the ITAA this was done through periods of intensive daily practice, approximately twenty to thirty minutes in duration, and through many opportunities to express their ideas in writing on the blackboard.

Training in writing the symbols was provided simultaneously with the phonic instruction. Mastery in the use of these symbols was demonstrated through writing. The rationale for this approach was expressed in the Downing Reading Teacher's Manual:

> Most children have more incentive to learn phonetic significance of the letters when they begin creative writing. If children find they can construct their

> own words in writing through knowing how to write the component sounds, they will use their phonics. Therefore, children should be given an early opportunity to write creatively, and encouraged to learn the letters as code symbols for sounds they use in speech. (p. 7)

The experiences for the daily writing activities were drawn from home and school interests, field trips, story reading, dramatizations, art, music, science and social studies. Initially, the teacher recorded the experiences of individual children on the blackboard. Later, the children wrote the words themselves with the teacher encouraging them to write each symbol as they treat with the word sound by sound. Blackboard work was supplanted by individual compositions written on large sheets of line paper provided for this purpose.

Writing was supplemented with periodic work in the Downing Readers which provided a sequential review of all the sound-symbol relationships. The stories in this series had considerable appeal for the children as well as for teachers. The ten initial books in the Downing Readers provided a vocabulary build-up of 152 words in 368 pages. The rate of introduction of the new words was controlled, and consideration was given to the difficulty of the sentence structure. Vocabulary extension readers were offered to give students more advanced reading materials and control of a larger vocabulary before transition to traditional orthography was made. A total of 1347 different words appear in the entire series.

Throughout the program, individual reading of the readily accessible tradebooks was encouraged. Gradually, as children gained independence, library books in traditional print were placed on the

library shelf. When transition was completed, small group work in the D.C. Heath "Reading Caravan Series" -- PEPPERMINT FENCE, SKY BLUE, STAR BRIGHT and MEADOW GREEN, as well as Charles Merrill's "Treasury of Literature Series" -- MERRY-GO-ROUND, HAPPINESS HILL, MAGIC CARPET, was encouraged.

The desire to have all children "complete the first grade program," a typical problem in many of our schools, may have caused a few of the teachers to accelerate the ITA program and arrange for a transition to traditional print before they were ready. Approximately eighty percent of the children had made the transfer before the close of the school year, and the others had received many opportunities to observe and read material in the traditional alphabet. In an industrial community, there is apt to be considerable mobility in the school population, and teachers were naturally concerned about boys and girls who would not have access to ITA materials next year.

LANGUAGE ARTS APPROACH

The school districts had agreed to provide LAA teachers with access to a primer typewriter, a tape recorder, individual word file system, THE LITTLE OWL BOOKS*; individual copies of AMERICAN ENGLISH, Book I*; and Language Experience Charts, D. C. Heath Company. Ample supplies of art and related materials were assured, and each school had access to a central library.

Unlike the San Diego language experience project, teachers in this study used a program which provided for the systematic intro-

*Holt, Rinehart and Winston Co.

duction of skills in mastery of letter names, letter sounds, applied phonics and a meaningful vocabulary. The program used was entitled SPEECH TO PRINT PHONICS** by Helen Murphy and Donald Durrell. This instruction was employed twenty to thirty minutes daily with group practices which encouraged every pupil response. Closure devices were used to direct children in learning to write as well as to recognize individual letters.

THE LITTLE OWL BOOKS and similar tradebooks were read to the young people for the purpose of having them discover the patterns of the stories. In addition, field trips, art and science activities, music, social studies and related experiences all served to give the boys and girls something to talk and write about.

Major emphasis was placed upon a series of language experience units prepared by R. Van Allen. These materials will be published in 1966 through the Encyclopedia Brittanica Press. The units used included: At Home and School, Growing Up, Animals Everywhere, and Magic Plastics. In addition, teachers in the project prepared units concerned with holidays, electricity and magnetism and weather. Teachers in the program also prepared units for use in the study.

Essentially, teachers in this program followed these steps:

1. Classroom environment encouraged individual expression through art, dramatization, play, music and listening to stories.

2. The teacher recorded large and small group ideas on the blackboard. These were read for different purposes.

3. Individual children were encouraged to dictate ideas and stories while the teacher recorded the words used. These materials provided individual reading experiences and led to the preparation of individual books as well as word files.

**Harcourt, Brace and World Book Company

4. New words were discussed and children had opportunities to use and discuss them in small groups. Service words were listed on charts for general use.

5. The teachers often typed the stories for individual and class books using the children's illustrations whenever possible. These books were placed on the reading table.

6. When a student expressed a desire to write on his own, he was encouraged to do so. Correct spelling was respected but each child was encouraged to sound through the word, letter by letter, recording the one which made sense to him. Later, he might discover the correct spelling when the teacher typed his story or when he found the words in other books.

7. Many exciting and different classroom experiences were provided so that most children could work independently while the teacher worked with one at a time.

8. The teacher provided the opportunity for small group work stressing the importance of learning from one another.

9. No pressure was placed upon children moving from dictation to self-commitment in writing. Some continued to dictate throughout the year, and were pleased that they could read their own productions.

10. The unit activity as well as experiences in all parts of the curriculum assured the boys and girls of many interesting purposes for painting and writing.

11. When considerable independence developed, the teacher arranged to meet with small groups to extend their vocabularies and related comprehension skills.

12. Occasionally, textbooks or tradebooks were used for a directed reading lesson with the thought of having each young person develop a reading-thinking plan.

13. While skills were developing, opportunities for independent reading were provided. The teacher often discussed the books children were reading in individual and small group sessions.

14. Inherent in this whole program were ample provisions for frequent informal evaluations of student progress.

As in the ITAA, the teachers were pleased with the interest and vigor young people demonstrated in early writing experiences. Teachers were encouraged to use an individualized approach as children became quite independent and self-sufficient.

BASIC READER APPROACH

It was felt that the children using basic readers in this study should also have the benefit of a teacher who was enthusiastic and excited about the many new and different practices found in a program with which she had not been acquainted. Each district, therefore, agreed to allow basic reader reseearch teachers to employ sets of materials different from those they had been using for a number of years in the past. The spontaneity and liveliness of the discussions which ensued throughout the school year in the in-service training sessions indicated that this was a good move.

Each district selected a basic reader program of their choice. The various basic programs used were:

HOUGHTON-MIFFLIN COMPANY

Reading for Meaning, Fourth Edition, 1966

Readiness

GETTING READY TO READ
LEARNING LETTER SOUND

Pre-Primer

TIP (P.P. #1)
TIP AND MITTEN (P.P. #2)
THE BIG SHOW (P.P. #3)
Workbook for P.P.'s 1-3

Primer

JACK AND JANET
Workbook for Jack and Janet

First Reader

UP AND AWAY
Workbook for Up and Away

AMERICAN BOOK

Readiness

Grade I	ABC FUN FOR ALL,	Language readiness
	ABC READY! GO!	Reading readiness

Pre-Primer

ABC ON OUR WAY (first)
ABC TIME TO PLAY (second)
ABC ALL IN A DAY (third)

Primer

ABC UP THE STREET AND DOWN
ABC STUDYBOOK (primer)

First Reader

ABC AROUND THE GREEN HILLS
ABC STUDYBOOK (first reader)

SCOTT-FORESMAN CO. (60)

Pre-Reading

WE READ PICTURES
WE READ MORE PICTURES
BEFORE WE READ

Pre-Primer

SALLY, DICK, AND JANE (First, P.P.)
FUN WITH OUR FAMILY (Second, P.P.)
FUN WHEREVER WE ARE (Third, P.P.)
THINK AND DO BOOKS, P.P. Program

Jr. Primer

THE NEW GUESS WHO
THINK AND DO BOOK

Primer

FUN WITH OUR FRIENDS
THINK AND DO BOOK

Book One

MORE FUN WITH OUR FRIENDS
THINK AND DO BOOKS
THE NEW WE THREE (Reading for independence)

GINN BASIC READERS, Revised Edition, 1961

Readiness

FUN WITH TOM AND BETTY
GAMES TO PLAY

Pre-Primer

MY LITTLE RED STORY BOOK
MY LITTLE GREEN STORY BOOK
MY LITTLE BLUE STORY BOOK
MY DO AND LEARN BOOK
BY MYSELF BOOKLET

Primer

LITTLE WHITE HOUSE
MY DO AND LEARN BOOK

First Reader

ON CHERRY STREET
MY DO AND LEARN BOOK

While it was recognized that the scope and content of these four series varied considerably, the patterns for developing the basic skills of boys and girls were quite similar. All four provided two

or more reading readiness books, pre-primers and primers with carefully controlled and redundant vocabularies, sequential skill programs, stories geared to the wide interest of children, workbooks and explicit teacher manuals which offered many suggestions designed to meet the individual needs of all students.

The teachers were encouraged to make full use of the suggestions provided in the teacher's manuals and to differentiate instruction in accord with individual progress. Independent reading and writing was employed in the classrooms in accord with the goals of individual series.

As many of the basic reader teachers were already using a supplementary phonics program, SPEECH TO PRINT PHONICS, a kit of word study materials identified for the LAA, was also used in BRA. This provided some balance in the development of all three reading readiness approaches as each stressed the importance of intensive training in recognition of individual symbols as well as sounds. The supplementary materials were not used to take the place of other readiness activity suggested by basic series authors.

CHAPTER IV

ANALYSIS OF THE DATA

The following report is presented in terms of the questions which were originally proposed for this study. The data is limited, for the most part, to the analysis of the responses of children on standardized tests and word lists. All of the testing was done with traditional print although twenty percent of the ITAA children had not transferred to TO in their instructional programs. The latter, however, were not entirely unfamiliar with the standard alphabet.

1. Will there be a significant difference in the effectiveness of the three approaches to beginning reading instruction at the close of the school year?

Analysis of variance, using a method of unweighted means, was employed to test the main effect of the three approaches with the Stanford Word Reading scores. These scores were selected because significant differences in the mean scores among the three approaches were found. The data was reported on Table VI.

Table VI

ANALYSIS OF VARIANCE
DISTRICT - APPROACH - WORD READING

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
District	11	327.2	29.75	17.0*
Approach	2	26.24	13.12	7.49*
Interaction	22	94	4.27	2.4*
Error	839	1465	1.746	

*Significant interaction between approach and district.

Table VI showed that no test of main effect was possible. No one approach was consistently most effective in all of the school districts which participated in this project. In studying the data district by district (See Appendix), it was apparent that not all of the units of the research teams were well matched in terms of readiness or intelligence test scores. There was some indication, too, that differences in teacher experience and background provided an important variable. This information suggests the need for caution in interpreting the data which follows.

It was reported earlier that the total population for the three approaches was closely matched in terms of reading readiness and intelligence (See Table V). It was, therefore, most desirable to study the complete data rather than analyzing the results district by district.

Comparative data on the mean scores for the Stanford Achievement Test, organized to study differences in the three approaches, was recorded on TABLE VII (p. 37). The t test was used to determine the significance of the differences. It was planned that differences among the three approaches would be treated separately under questions 1a, 1b and 1c, but the range and kinds of differences deserve attention. Word Reading, Vocabulary, Spelling and Arithmetic test scores revealed significant differences among the three groups. These differences were limited to: Spelling for ITAA and LAA, Word Reading and Arithmetic for ITAA and BRA, and Word Reading, Vocabulary and Arithmetic for LAA and BRA. ITAA and LAA excelled BRA in Word Reading while ITAA scores in Spelling were significantly lower when compared with LAA and BRA scores.

TABLE VII

COMPARISON OF MEAN SCORES ON STANFORD ACHIEVEMENT TEST
TOTAL POPULATION

TESTS	ITAA Mean	ITAA S.D.	LAA Mean	LAA S.D.	BRA Mean	BRA S.D.	t Tests ITA-LA	t Tests ITA-BR	t Tests LA-BR
Word Reading	24.02	7.85	23.76	6.72	21.92	7.21	.43	3.39**	3.21**
Paragraph Meaning	21.48	10.95	22.19	9.97	20.89	9.72	.82	0.68	1.60
Vocabulary	21.90	7.02	22.37	5.89	21.39	6.02	.86	0.95	1.98*
Spelling	11.06	5.76	13.72	5.61	12.87	5.40	5.59**	3.91**	1.86
Word Study	39.34	9.83	39.37	9.26	38.17	9.27	.03	1.48	1.56
Arithmetic	39.15	15.08	38.47	13.21	36.53	13.55	.58	2.21*	1.75

TABLE VIII

COMPARISON OF MEAN SCORES ON INDIVIDUAL READING TESTS
RANDOM SAMPLE

Gilmore Accuracy	23.73	11.04	23.38	10.76	24.75	8.75	0.17	0.53	0.73
Gilmore Rate	61.55	23.97	66.09	24.58	67.88	23.53	0.96	1.38	0.38
Fry Word List	15.94	9.01	11.22	8.50	10.18	8.52	2.78**	3.41**	0.64
Gates Word List	18.62	8.33	15.14	7.72	15.46	6.94	2.23*	2.15*	0.22
Karlsen Word List	17.87	10.76	14.47	10.54	14.74	9.80	1.65	1.59	0.13

*Significant at the .05 level
**Significant at the .01 level

Individual test scores means taken from a random sample of the population in all three approaches were reported on Table VIII (p. 37). The c test was used to study the significance of the differences noted. ITAA scores were consistently and significantly higher than LAA and BRA scores on the Fry and Gates Word Lists. No significant differences were reported for the small sample achievement when LAA was compared with BRA. No significant differences among all three approaches were found on the Gilmore Oral Reading Paragraphs.

Further investigations were made to examine the differences in frequency distributions using the Word Reading and Paragraph Meaning raw scores. A class interval was determined for each set of scores and the distribution was counted. In order to examine the variations in these distributions, an expected score for each interval was determined using the scores for all three approaches. Chi square was applied to the data and the probability of the variations in distribution occurring were studied for significance.

The frequency distributions according to class intervals and instructional approaches for Word Reading test scores were noted on Table IX (p. 39). While some individual variations were found among the three approaches, these differences were not significant.

The frequency distributions for Paragraph Meaning were reported on Table X (p. 40) and the histogram on Table XI (p. 41). Significant differences in the variations among the three approaches were revealed at the .001 level. Although comparisons in these scores will be studied later, some observations should be made here. ITAA scores were the most numerous at both extremes of the distribution. The total number of students making 26 points or higher for the three groups were:

TABLE IX

COMPARISON OF FREQUENCY DISTRIBUTIONS
ON THE STANFORD WORD READING TEST

	ITAA		LAA		BRA		
Class Interval	Actual Number	Expected Number	Actual Number	Expected Number	Actual Number	Expected Number	Total
5-9	8	6.4	4	6.7	8	6.0	20
10-14	36	33.3	31	34.9	37	35.8	104
15-19	44	49.6	46	52.0	65	53.4	155
20-24	47	62.3	69	65.4	79	67.2	195
25-29	59	65.5	74	68.8	72	70.7	205
30-34	71	56.9	66	59.7	41	61.4	178
35-39	18	8.9	7	9.4	3	9.7	28
	283		297		305		885

X^2, 12, d.f. = 3.69

P .98 not significant

ITAA - 141, LAA - 158, BRA - 135. In the range of 22 correct responses or less, the number of pupils were: ITAA - 154, LAA - 146, BRA - 178. It might be recalled, that 18 of the brightest students from ITAA had received reading instruction in TO in kindergarten. Practically all of these young people made high Paragraph Meaning scores.

As learning to read is a function of intelligence, variations in measured achievement might be expected, at least in part, in terms of capacity. An investigation was made of differences in correlations between intelligence test scores and Stanford Achievement Test scores. The Product Moment Correlations reported on Table XII were converted to Fisher's Z. The following formula was used to determine the significance

TABLE X

FREQUENCY DISTRIBUTION

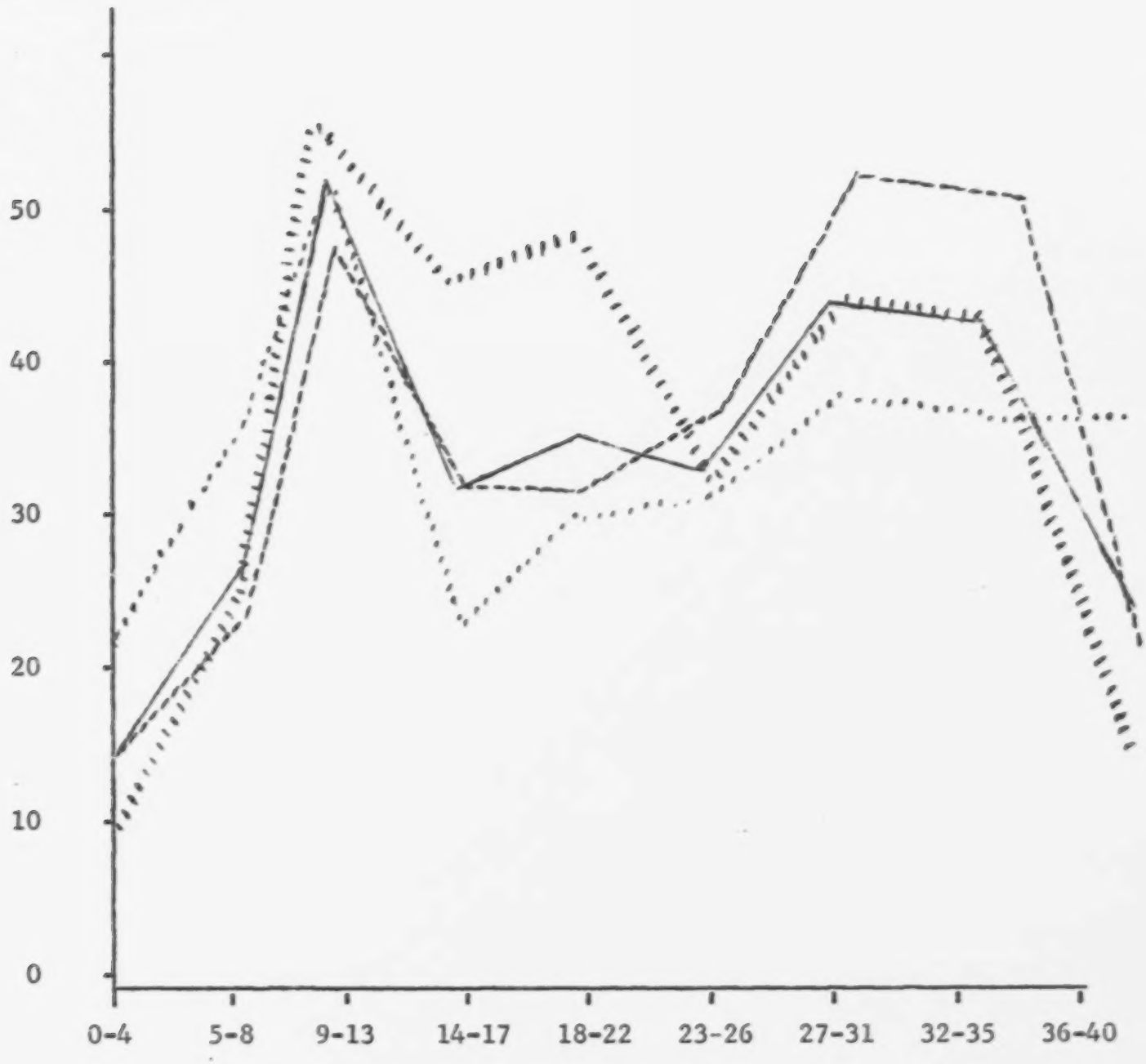
PARAGRAPH MEANING SCORES AND TEACHING METHODS

Class Int.	Method						
	ITAA		LAA		BRA		Total
	Actual	Exp.	Actual	Exp.	Actual	Exp.	
0 - 4	21	14.5	15	15.0	9	15.4	45
5 - 8	35	26.5	21	26.3	23	27.1	79
9 - 13	51	48.5	47	50.0	52	51.5	150
14 - 17	20	31.4	32	32.3	45	33.3	97
18 - 22	27	34.6	31	35.6	49	36.7	107
23 - 26	32	33.3	37	34.3	34	35.3	103
27 - 31	37	43.0	52	44.3	44	45.6	133
32 - 35	36	41.7	49	43.0	44	44.3	129
36 - 40	36	22.3	20	23.0	13	23.7	69
Total	295		304		313		912

X^2 16 d.f. = 42.2

Significant at .001 level

HISTOGRAM FOR DISTRIBUTION OF PARAGRAPH
MEANING SCORES FOR THREE READING APPROACHES



$X^2 = 42.2$, 16 d.f. $P \sim\sim .001$

_____ total expectancy

..... ITAA

---------- LAA

'''''''''''' BRA

of differences between the Z's[a].

$$X = \frac{Z_1 - Z_2}{\sqrt{\frac{1}{N-3} + \frac{1}{N-3}}}$$

Only those Z's which were significant at the .05 level or higher were reported:

TABLE XII

PRODUCT MOMENT CORRELATIONS BETWEEN INTELLIGENCE AND ACHIEVEMENT TEST SCORES WITH COEFFICIENTS CONVERTED TO FISHER'S Z

	ITAA		LAA		BRA	
	r	Z	r	Z	r	Z
PC - WR	.54	.61	.59	.68	.51	.57
PC - PM	.52	.58	.62	.73*	.47	.51
PC - Voc.	.62	.73	.59	.68	.54	.61
PC - Sp.	.46	.50	.51	.57	.46	.50
PC - WS	.58	.67**	.58	.67**	.49	.54
PC - Arith.	.66	.80***	.57	.65	.59	.68
PC - Att.	.09	.10	.12	.13	.05	.05

* LAA > ITAA at the .05 level for Paragraph Meaning

LAA > BRA at the .01 level for Paragraph Meaning

** ITAA and LAA > BRA at the .05 level for Word Study

*** ITAA > LAA at the .05 level for Arithmetic

Inter-correlations of final test data for the 900 children were included on Table XIII (p. 43) for comparative study.

a. Will there be a difference between the measured achievement for ITAA and LAA?

On Table VII, significant differences were noted on one sub-test of the Stanford Achievement Test. LAA was significantly higher

[a] Fisher, R. A., Yates, Frank - STATISTICAL TABLES FOR BIOLOGICAL AGRICULTURE AND MEDICAL RESEARCH. N. Y.: Hafner Publishing Company, Inc., 1963

TABLE XIII

PRODUCT MOMENT CORRELATIONS FOR FINAL TEST DATA
(Total Population)

		1	2	3	4	5	6	7	8
1.	P. C. Int.	---	.08	.55	.53	.58	.47	.56	.61
2.	Attitudes			.13	.18	.11	.13	.13	.08
3.	Word Reading				.84	.61	.66	.78	.64
4.	Par. Meaning					.59	.78	.78	.62
5.	Vocabulary						.54	.61	.64
6.	Spelling							.76	.60
7.	Word Study								.68
8.	Arithmetic								

at the .01 level than ITAA in Spelling.

On Table VIII, two individual tests taken from a small population sample revealed significant differences. ITAA was higher than LAA on the Fry Word List, at the .01 level, and on the Gates Word List, at the .05 level. Differences on the Gilmore Oral Reading Paragraphs and Karlsen Word List were not significant. No differences between ITAA and LAA were found on the frequency distribution for Word Reading on Table IX. However, there were indications of differences in distributions for Paragraph Meaning scores between ITAA and LAA reported on Table X. These differences were meaningfully interpreted on Table XI.

On Table XI, comparing correlations between achievement and intelligence, the LAA Z score was significantly higher than the ITAA Z score at the .05 level for Paragraph Meaning. In contrast, the ITAA Z was higher than LAA Z for Arithmetic at the .05 level. No other significant differences were noted.

b. Will there be a difference between the measured achievement for ITAA and BRA?

On Table VII, three significant differences for the subtests

of the Stanford Achievement Test were recorded. ITAA had higher scores than BRA for Word Reading, significant at the .01 level, and for Arithmetic, significant at the .05 level. BRA made higher scores than ITAA in Spelling, significant at the .01 level.

On Table VII, ITAA made higher scores than BRA on the Fry Word List, significant at the .01 level, and on the Gates Word List, significant at the .05 level. It appeared that the BRA children read more rapidly and accurately on the Gilmore Oral Reading Paragraphs, however, the differences were not significant.

On Table XI, Fisher's Z score showed a higher correlation between Word Study and intelligence for ITAA, significant at the .05 level. No other differences were reported.

c. Will there be a difference between the measured achievement for LAA and BRA?

On Table VII, it appeared that LAA made consistently higher scores on all sections of the Stanford Achievement Test; however, only two of these sets of scores were significantly different. LAA was higher than BRA in Word Reading at the .01 level, and Vocabulary at the .05 level.

On Table VIII, no significant differences between the two groups were found for oral reading or performance on word recognition tests.

On Table X, significant differences in frequency distribution for Paragraph Meaning scores were reported. BRA scores tended to peak in the low average range while LAA scores peaked in the high average range.

On Table XI, Fisher's Z scores suggested that LAA scores in the Stanford Achievement Test correlated better than BRA scores with

intelligence on two counts. LAA was higher than BRA on Paragraph Meaning, at the .01 level, and on Word Study, at the .05 level.

2. Will there be a difference in the measured achievement by boys and girls when intelligence scores are held constant?

Chi square was used to study the performance of boys and girls on the Pintner-Cunningham Intelligence Test. The results in terms of frequency distributions were reported on Table XIV (p. 46). There were no significant differences between the two groups.

Frequency distributions for boys and girls in the Stanford Achievement Word Study Test were reported on Table XV (p. 46). The data revealed that boys lagged behind the girls in performance. The differences in performance between the two groups were significant at the .01 level.

Further examination of the Word Study scores to determine differences between the three approaches for boys versus girls were reported on Table XVI (p. 47). No significant difference was found between the patterns of performance of boys and girls in the three treatment groups.

3. Will there be a difference in the measured achievement of children whose birthdays were between January and June, and those born between July and December?

Frequency distributions for boys and girls in the three approaches were plotted in terms of age in months and performance on the Stanford Achievement Paragraph Meaning Test. These results were reported on Tables XVII and XVIII (pp. 48 and 49). There was little evidence of the relationship between age and performance to warrant further study of this problem. (Continued on p. 50)

TABLE XIV

FREQUENCY DISTRIBUTION
PINTNER GENERAL ABILITY TESTS
TOTAL SCORES BY SEX

	B O Y S		G I R L S		
PINTNER Scores	Actual Number	Expected Number	Actual Number	Expected Number	Total
12-17	10	6.3	2	5.7	12
18-23	14	12.4	10	11.6	24
24-29	28	28.5	27	26.5	55
30-35	66	69.9	69	66.1	135
36-41	142	131.1	111	121.9	253
42-47	131	132.6	125	123.4	256
48-53	60	67.9	71	63.1	131
54-59	6	8.3	10	7.7	16
	457		425		882

$X^2 = 1.01$
7 d.f.

P > .99 Not significant

TABLE XV

FREQUENCY DISTRIBUTION
STANFORD WORD STUDY SCORES BY SEX

	B O Y S		G I R L S		
Stanford Word Study	Actual	Expected	Actual	Expected	Total
0-13	13	14.4	14	13.6	27
14-20	22	17.5	12	16.5	34
21-27	45	40.7	34	38.3	79
28-34	86	76.8	63	72.2	149
35-41	118	119.5	114	112.5	232
42-48	119	118.0	110	111.0	229
49-55	62	78.8	91	74.2	153
56-62	4	3.1	2	2.9	6
Total	469		441		910

$X^2 = 13.3$
d.f. = 7

Significant at the .01 level

TABLE XVI

FREQUENCY DISTRIBUTION

METHOD AND SEX COMPARED WITH ACHIEVEMENT IN WORD STUDY

Word Study Scores	BOYS			GIRLS			Total
	ITAA	LAA	BRA	ITAA	LAA	BRA	
0 - 22	22	10	15	15	11	12	85
Expected	14.6	13.9	15.4	13.2	14.1	13.9	
X^2	3.7	1.0	0	0.5	0.6	0	
23 - 44	85	95	115	79	85	87	546
Expected	94.0	88.6	99.0	84.9	90.4	89.2	
X^2	0.8	0.4	2.5	0.4	0.3	0	
45 - 67	48	41	33	46	53	48	269
Expected	46.4	43.6	48.7	41.8	44.5	43.9	
X^2	0	0.1	5.0	0.4	1.2	0.3	
TOTAL	155	146	163	140	149	147	900
X^2	4.5	1.5	7.5	1.3	2.1	0.3	

$X^2 = 17.2$ $P > .10$ Not Significant

10 d.f.

TABLE XVII

FREQUENCY DISTRIBUTION
AGE OF BOYS AND ACHIEVEMENT ON STANFORD PARAGRAPH MEANING TEST

ITAA

Age in Months	0-3	4-8	9-12	13-17	18-21	22-26	27-30	31-35	36-39	Total
67-70	2	3	6		1	3	1	1		17
71-74	5	7	4		3	3	5	2	5	34
75-78	2	6	11	7	6	1	5	6	4	48
79-82	2	5	7	5	5	4	6	8	6	48
83-86	1	1	3							5
	12	22	31	12	15	11	17	17	15	152

LAA

Age	0-3	4-8	9-12	13-17	18-21	22-26	27-30	31-35	36-39	Total
67-70		5	2	2	1	2	1			13
71-74	3	5	10	9	8	8	5	6	4	58
75-78	5	1	11	5	2	4	6	4	4	42
79-82	2	3	5	4	4	4	4	5	1	32
83-86					1		1	1		3
	10	14	28	20	16	18	17	16	9	148

BRA

Age	0-3	4-8	9-12	13=17	18-21	22-26	27-30	31-35	36-39	Total
67-70			2	3		1	1			7
71-74	2	6	10	5	10	6	4	7	2	52
75-78	2	7	8	6	8	5	9	4	2	51
79-82	1	4	7	9	6	5	4	6		42
83-86		1	2	1	3		1	1		9
	5	18	29	24	27	17	19	18	4	161

TABLE XVIII

FREQUENCY DISTRIBUTION
AGE OF GIRLS RELATED TO ACHIEVEMENT ON STANFORD PARAGRAPH MEANING TEST

ITAA

Age in Months	0-3	4-8	9-12	13-17	18-21	22-26	27-30	31-35	36-39	Total
67-70	1		3			1	1	1		7
71-74	1	6	7	1	3	5	7	6	2	38
75-78	4		4	5	7	9	5	7	12	53
79-82	2	4	4	2	2	6	7	3	6	36
83-86		1							1	.2
87-90		1								1
	8	12	18	8	12	21	20	17	21	137

LAA

Age	0-3	4-8	9-12	13-17	18-21	22-26	27-30	31-35	36-39	Total
67-70	1	2	4	1	1	1	4	6		20
71-74	2	3	7	3	5	5	12	5	2	44
75-78			4	2	7	8	13	13	6	53
79-82	1	1	2	4	2	5	6	8	2	31
83-86									1	1
87-90			1	1						2
	4	6	18	11	15	19	35	32	11	151

BRA

Age	0-3	4-8	9-12	13-17	18-21	22-26	27-30	31-35	36-39	Total
67-70				1	2	1	1	2		7
71-74	2	1	12	5	8	3	8	4	1	44
75-78	1	4	2	9	7	6	10	9	1	49
79-82	1		6	3	3	6	6	10	4	39
83-86			2		1					3
87-90								1		1
	4	5	22	18	21	16	25	26	6	143

4. Will there be a difference in the measured achievement of children with high, average and low intelligence scores?

Approximately 80 students for each approach were selected for the high, average and low intelligence range. The means for each group were computed and levels of significant differences were determined by the use of the t test. This information was reported on Table XIX (p. 52).

In studying the differences between ITAA and LAA, the LAA made significantly higher scores in Spelling among the students with the highest intelligence. In the average range, LAA was significantly higher on Paragraph Meaning at the .05 level and Spelling at the .01 level. In the low group, differences in Vocabulary and Spelling may well be attributed to the higher intelligence scores on the part of LAA.

In examining differences between ITAA and BRA, BRA was consistently higher than ITAA in Spelling for the entire range of intelligence. In the high intelligence group, ITAA had significantly higher scores, at the .01 level, for Word Reading and Arithmetic. Except for Spelling, differences were not significant at the middle and low intelligence range.

There was only one source of significant difference between LAA and BRA. LAA was significantly higher than BRA at the .01 level for Word Reading in the average intelligence range.

5. Will there be a difference in the measured achievement of children with high, average, and low reading readiness scores?

Approximately 80 students for each approach were selected for the high, average and low reading readiness range. A comparison

of the mean scores for each of the three groups was recorded on Table XX (p. 54).

In studying the differences between ITAA and LAA, LAA continued to have higher scores for the high at the .01 level, the average at the .05 level and the low readiness scores at the .05 level.

It was among the high readiness scores that the largest number of significant differences was found. Young people in the BRA were significantly lower than ITAA and LAA in Word Reading, Vocabulary, Word Study and Arithmetic. The differences noted may be attributed, in part, to the significantly lower intelligence score on the part of the BRA. At the Average and Low Readiness Score ranges, differences for the most part were not significant when BRA was compared with the other two approaches.

6. Will there be a difference in the measured achievement of children from high, average and low socioeconomic neighborhoods?

Approximately 90 students for each approach were selected from the high, average, and low socioeconomic neighborhoods. Census information was used for this purpose. A comparison of the mean scores for each of the three groups was recorded on Table XXI (p. 55).

In studying differences in mean scores at the high range, ITAA was significantly higher than LAA and BRA at the .05 level for Word Reading. LAA and BRA were significantly higher than ITAA in Spelling at the .01 and .05 levels respectively. LAA was higher than BRA at the .05 level for Paragraph Meaning. (Cont. on p. 55)

TABLE XIX

COMPARISON OF ACHIEVEMENT ACCORDING TO INTELLIGENCE TESTS

HIGH TEST SCORES

	ITAA		LAA		BRA		t Tests		
	Mean	S.D.	Mean	S.D.	Mean	S.D.	ITA-LA	ITA-BR	LA-BR
Attitude	18.76	4.19	17.98	4.09	17.80	4.34	1.34	1.59	.30
Word Reading	28.04	6.11	26.82	5.84	25.31	6.10	1.47	3.18**	1.80
Paragraph Meaning	27.39	9.15	26.73	8.54	25.65	8.31	.53	1.42	.92
Vocabulary	25.23	5.86	25.06	5.35	24.98	5.38	.22	.32	.11
Spelling	13.44	4.99	16.18	4.35	15.59	3.88	4.22**	3.42**	1.02
Word Study	44.04	6.83	43.81	6.98	42.93	7.06	.24	1.14	.90
P.C. Int.	46.40	4.70	46.02	4.37	45.57	4.24	.62	1.53	.77

AVERAGE TEST SCORES

Attitude	17.67	4.48	18.10	3.93	17.37	6.52	.70	.37	.94
Word Reading	23.20	7.21	24.05	6.43	21.77	7.82	.89	1.36	2.28**
Paragraph Meaning	19.25	10.38	22.34	10.04	20.15	10.69	2.13*	.61	1.51
Vocabulary	21.54	6.91	21.79	5.93	21.25	5.52	.28	.33	.69
Spelling	10.19	5.26	13.62	5.45	12.58	5.40	4.48**	3.17**	1.37
Word Study	38.32	9.46	39.48	9.24	37.73	9.29	.87	.45	1.35
P.C. Int.	39.71	5.42	40.59	5.48	41.25	4.78	1.15	2.19*	.93

LOW TEST SCORES

Attitude	18.38	4.34	16.92	3.93	17.69	4.01	2.04*	.99	1.17
Word Reading	18.14	7.39	19.52	6.15	18.85	5.95	1.21	.65	.67
Paragraph Meaning	14.42	9.18	16.05	8.50	17.08	7.82	1.09	1.92	.77
Vocabulary	16.69	5.11	19.32	4.95	17.91	5.15	3.09**	1.43	1.71
Spelling	8.12	5.91	10.77	5.84	10.55	5.43	2.66**	2.61**	.24
Word Study	32.78	10.20	33.49	8.68	34.02	9.04	.44	.78	.36
P.C. Int.	29.23	7.38	32.13	5.98	31.21	6.44	2.61**	1.79	.91

* Significant at the .05 level
** Significant at the .01 level

TABLE XX

COMPARISON OF READING ACCORDING TO METROPOLITAN READING READINESS TEST SCORES

HIGH SCORES

	ITAA		LAA		BRA		t Tests		
	Mean	S.D.	Mean	S.D.	Mean	S.D.	ITA-LA	ITA-BR	LA-BR
Word Reading	27.78	6.21	27.63	5.09	24.99	6.91	.23	3.83**	3.90**
Paragraph Meaning	26.53	9.35	27.65	7.23	24.92	9.51	1.15	1.55	2.84**
Vocabulary	25.73	5.64	25.51	4.72	24.08	5.60	.37	2.64**	2.48*
Spelling	13.43	5.00	16.83	3.36	15.01	4.47	7.00**	3.01**	4.12**
Word Study	44.43	6.90	44.41	7.12	41.99	7.95	.02	2.95**	2.87**
Arithmetic	47.61	10.30	46.05	9.65	42.14	12.12	1.38	4.39**	3.21**
P. C. Int.	44.66	5.66	44.49	5.27	43.17	5.48	.27	2.47*	2.24*

AVERAGE SCORES

Word Reading	21.35	7.30	22.04	5.16	20.82	4.93	.49	.41	1.13
Paragraph Meaning	18.73	9.78	18.85	8.80	18.67	7.48	.06	.03	.10
Vocabulary	19.24	4.78	21.57	5.42	20.34	4.26	1.98	1.13	1.17
Spelling	9.71	5.07	12.06	5.20	12.07	4.79	2.02*	2.19*	.01
Word Study	36.76	8.64	35.42	9.87	37.16	8.00	.63	.22	.91
Arithmetic	34.75	10.07	34.30	11.00	34.67	11.24	.18	.03	.16
P. C. Int.	40.21	4.64	38.15	4.96	38.67	6.36	1.87	1.20	.42

LOW SCORES

Word Reading	18.32	6.74	18.77	5.54	16.97	5.44	.51	1.48	2.20*
Paragraph Meaning	13.82	8.86	15.24	8.27	14.55	6.89	1.13	.61	.59
Vocabulary	16.09	5.02	18.27	5.33	17.45	5.00	2.91*	1.83	1.07
Spelling	7.71	5.26	9.53	5.51	9.17	5.14	2.31*	1.86	.45
Word Study	31.38	8.56	32.35	8.71	31.38	8.29	.77	.03	.70
Arithmetic	26.19	12.01	27.85	11.60	26.63	11.17	.97	.25	.71
P. C. Int.	31.53	8.17	34.20	7.18	32.95	7.93	2.43*	1.18	1.10

* Significant at the .05 level
** Significant at the .01 level

TABLE XXI

COMPARISON OF READING ACHIEVEMENT ACCORDING TO SOCIOECONOMIC LEVELS

	ITAA		LAA		BRA		t Tests		
	Mean	S.D.	Mean	S.D.	Mean	S.D.	ITA-LA	ITA-BR	LA-BR
HIGH RANGE									
Attitude	17.57	3.66	18.23	2.97	16.68	6.21	1.13	9.9	1.82
Word Reading	29.72	4.93	27.14	5.65	25.52	8.54	2.80**	3.46**	1.29
Paragraph Meaning	28.39	8.59	26.14	9.95	25.07	11.09	1.38	1.93	.59
Spelling	14.73	4.64	16.13	4.84	15.60	4.51	1.68	1.09	.64
Word Study	44.26	7.71	43.55	8.39	41.92	8.56	.50	1.65	1.11
P.C. Int.	43.64	8.34	42.25	7.87	41.88	6.49	.98	1.37	.30
MIDDLE RANGE									
Attitude	17.01	4.62	16.84	4.31	16.69	4.81	.23	.40	.19
Word Reading	23.34	7.39	23.58	7.19	20.71	6.29	1.00	2.31*	2.55*
Paragraph Meaning	21.60	10.66	22.76	9.56	19.24	8.44	.70	1.47	2.33*
Spelling	10.66	4.93	13.48	5.49	12.53	4.94	3.19**	2.23*	1.07
Word Study	38.14	9.30	37.96	9.64	36.50	8.83	.12	1.08	.94
P.C. Int.	40.05	7.09	40.00	8.41	39.67	8.01	.04	.30	.24
LOW RANGE									
Attitude	20.26	3.29	18.28	3.94	19.09	4.28	3.08**	1.79	1.15
Word Reading	19.32	7.44	20.94	6.11	20.03	6.43	1.38	.63	.87
Paragraph Meaning	15.36	9.41	19.19	8.78	18.77	9.31	2.44*	2.22*	.28
Spelling	7.84	4.63	11.25	5.08	10.78	4.89	3.99**	3.63**	.56
Word Study	33.61	9.17	37.00	9.01	35.32	9.64	2.17*	1.10	1.09
P.C. Int.	35.30	9.98	39.07	6.90	37.52	7.94	2.57**	1.51	1.26

*Significant at the .05 level
**Significant at the .01 level

In the lower range, ITAA had significantly higher Reading Attitude Scores than LAA but significantly lower scores on Paragraph Meaning, Spelling, Word Study and Intelligence. BRA was significantly higher than ITAA for Paragraph Meaning at the .05 level and Spelling at the .01 level. Differences between LAA and BRA were not significant in this range.

7. Will there be a difference in the number of books read by the children?

From the data collected, it appeared that children in all three approaches engaged in extensive independent reading and that the differences, if any, in the amount of reading done was not significant. It was impractical, however, to treat the information objectively.

8. Will there be a difference in the attitude towards reading of the children in the three approaches?

The results of the San Diego Reading Attitude Survey were reported on Table XXII. This test was read to the children and they responded with a "yes" or "no" answer.

TABLE XXII

COMPARISON OF SCORES ON READING ATTITUDE TESTS

Approach	Mean Score	S.D.
ITAA	18.34	2.77
LAA	17.66	4.04
BRA	17.58	5.16

Children in all three groups expressed their enthusiasm for reading. Differences found in the mean scores among children in the three groups were not significant at the .05 level.

9. Will there be a difference in the attitude of parents towards reading?

Parents in the one school in which all three approaches were used were invited to comment on their reactions to the approach employed by their child's teacher. The responses of all the parents were favorable. Differences among the three groups were insignificant. It was apparent that the teacher and not the method of instruction was evaluated by the parents.

10. Will there be a difference in the word attack skills of children in the three approaches?

There were differences in word attack among children in the three approaches. These differences were reported on Tables VII and VIII, and evaluated earlier in the report.

ITAA children made significantly higher scores on the Fry and Gates word lists. However, no significant differences in speed and accuracy were noted among the three approaches on the Gilmore Oral Reading Paragraphs.

CHAPTER V

RESULTS, CONCLUSION AND IMPLICATIONS

This study was designed to determine the relative effectiveness of three approaches to beginning reading instruction --- ITAA, LAA and BRA --- under the direction of inspired, research oriented teachers who volunteered to participate. The final evaluation of the performance of boys and girls was limited to a few standardized and informal tests. The most significant device, the Stanford Achievement Test, Primary Battery, was obviously intended to measure the performance of young people involved in basic reading programs. Furthermore, all of the tests were given in TO although at least twenty percent of the pupil population using ITA had not made the transfer to traditional print.

RESULTS

1. No one approach was consistently superior to the other two among the twelve school districts which participated in this study. The three classrooms within each district were not all well matched in terms of intelligence and reading readiness and some differences in kindergarten experiences were found. There were also variations in teacher experience and background and possibly in individual competency. These are problems which plague most attempts to make comparative studies of instructional practices.

2. The total population for the three treatment groups were well matched in scores on intelligence tests as well as Total Scores on the Metropolitan Reading Tests. Information gleaned from a study of the subtests of the Stanford Achievement Battery were therefore

most interesting. ITAA and LAA children made significantly higher scores than BRA pupils on the Word Reading Test. LAA and BRA children were superior to ITAA boys and girls on the Spelling test. However, no differences in spelling scores were found when ITA spelling was accepted.

3. In individual testing of a small random sample from each approach, no significant differences in speed and accuracy were found on an oral reading test. It was on the oral reading, however, that BRA children made the best showing. On individual word lists, significant differences were found in favor of the ITAA children. When the latter group were given plenty of time, they seemed to employ a broader range of word attack skills. It may be important to note, however, that these same skills did not serve them equally well in contextual materials.

4. In studies which endeavored to examine the relationship between intelligence and achievement a number of significant correlations were revealed. LAA children made better use of their capacity on the Paragraph Meaning test. Similarly, ITAA and LAA boys and girls excelled BRA children in using their intellect in Word Study. It would seem that if one of the goals of education is to assist each young person in making the best of his learning potential, these results are of particular importance.

5. Although the total population of boys was comparable to the total population of girls on an intelligence test, boys lagged significantly behind girls in Word Study. These results were similar in all three approaches.

6. In studies of the comparison of achievement controlling

intelligence, reading readiness, and socioeconomic status, no one particular pattern developed for the high, average and low ranges on the Stanford Achievement Test. ITAA and LAA continued to lead BRA children, for the most part, in Word Study, LAA and BRA children continued to excell ITAA pupils in Spelling.

7. Children in all three approaches read extensively. The data collected did not reveal any important difference in the amount of reading done among the three groups.

8. Enthusiastic and capable teachers were employed in all three approaches; therefore, it was not surprising that the attitudes of the children towards reading were equally enthusiastic among the three groups. No significant differences were found.

9. It was difficult to assess the attitude of parents towards the method used. In one evaluation it seemed that parents tended to be satisfied with the method their child's teacher was using. This was particularly true if the boy or girl was a good reader.

10. There were notable differences in word attack skills of children among the three approaches. ITAA children had learned to sound through a word one element at a time, and they employed a broader range of word attack skills which served them particularly well on word lists. Except for the studies of the relationship of intelligence to Word Study, there were no significant differences between LAA and BRA in word analysis on the achievement test.

CONCLUSIONS

Although final evaluation of the approach using ITA must

be postponed, there were significant differences among the three instructional methods selected for this study at the close of grade one. The objective data collected indicated that:

1. ITAA and LAA children developed larger reading vocabularies.
2. ITAA and LAA children made more effective use of their intellectual potential of word analysis.
3. LAA children made more effective use of their intelligence in getting the meaning from paragraphs.
4. ITAA children developed a broader range of skills for recognizing isolated words.
5. LAA and BRA children were better spellers.

Tests alone, however, could not reflect some of the interesting differences in the performance of boys and girls. The children who were encouraged to dictate and write extensively about ideas which had particular meaning for them throughout the school year appeared fascinated and delighted with their individual compositions. What is more, they were interested in reading the compositions of fellow students. In the LAA, the majority of first grade children preferred writing to reading activities. Furthermore, purposeful writing emphasizing creative expression tended to develop highly motivated independent workers.

IMPLICATIONS

The writing approach to reading with adequate provisions for the development of word attack skills used as this study revealed, once more, the importance of starting with the thoughts, ideas and

words of children in developing more alert, eager and effective young learners in the classroom. It was evident that teachers needed to discover many ways to help young people to elaborate and extend their oral and written expression in order to read with feeling and understanding. Further research in this area should prove to be most productive.

Satisfactory reasons for supplanting traditional orthography with the Initial Teaching Alphabet in teaching beginners to read were not fully demonstrated in this study. It was recognized that a longer period of time was necessary in order to evaluate the effectiveness of an augmented orthography. The spelling problems of ITA children will certainly warrant careful study throughout the primary grades.

Language arts teachers noted that children who selected pre-primers from the library table for independent reading often emulated the restricted writing patterns of these books for a short period of time. These experiences focused attention on the importance of continuing to use a few high frequency words for the first reading of children in basic programs. Do these first books temporarily retard the language skill development of young learners? In light of current research which has pointed to the nature of children's oral language when they enter school, this questions deserves further study.

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APPENDIX A

COMPARATIVE TEST DATA FOR INDIVIDUAL RESEARCH TEAMS

RESEARCH TEAM #1

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	76.41	75.75	75.29
Phonemes	18.87	23.94	28.00
Capital Letters	14.05	21.13	21.40
Lower Case Letters	9.94	16.40	16.30
Total Letters	21.83	36.16	33.87
Learning Rate	5.21	6.15	9.33
Pattern Copy	10.78	13.15	12.20
Identical Forms	13.90	17.50	10.86
Word Meaning	7.85	9.10	9.75
Metropolitan Listening	7.20	8.15	9.50
Matching	6.90	5.90	8.12
Numbers	8.60	11.05	11.75
Copying	6.41	5.89	9.83
Alphabet	6.52	10.21	10.04
Total Metropolitan Tests	42.20	49.40	59.00
Detroit Word Recognition	0	0	29.00(1)

(1) two students tested

POST-TEST -- MEAN SCORES

Pupil Absences	13.70	14.85	11.75
Reading Attitude	20.31	18.90	16.95
Word Reading	19.04	20.31	24.56
Paragraph Meaning	12.77	19.21	23.08
Vocabulary	17.68	21.57	24.04
Spelling	6.22	10.05	14.12
Word Study	33.22	36.26	41.95
Arithmetic	26.81	32.78	39.41
Gilmore Accuracy	14.50(2)	15.00(2)	22.75(2)
Gilmore Rate of Reading	52.00(2)	45.25(2)	54.75(2)
Phonetically Regular Words	13.50(2)	2.00(2)	11.00(2)
Gates Word Test	15.75(2)	6.75(2)	15.00(2)
Karlsen Phonemic	15.00(2)	3.75(2)	14.25(2)
Pintner General Ability	32.95	37.60	38.95

(2) Random sample, four students tested

RESEARCH TEAM #2

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	76.81	75.09	76.61
Phonemes	28.33	23.09	24.58
Capital Letters	20.86	22.27	22.21
Lower Case Letters	16.25	16.50	16.21
Total Letters	35.42	35.54	36.70
Learning Rate	9.53	7.63	8.20
Pattern Copy	11.07	9.68	5.48
Identical Forms	17.15	18.68	21.66
Word Meaning	9.70	9.77	8.91
Metropolitan Listening	10.61	9.85	10.58
Matching	8.57	9.50	8.00
Numbers	11.48	12.63	13.68
Copying	9.80	6.27	10.44
Alphabet	10.15	10.45	11.72
Total Metropolitan Tests	58.88	58.45	62.56
Detroit Word Recognition	4.50(1)	12.00(2)	8.33(3)

(1) four students tested
(2) five students tested
(3) three students tested

POST-TEST -- MEAN SCORES

Pupil Absences	12.40	12.90	14.15
Reading Attitude	19.86	17.05	17.36
Word Reading	19.16	23.18	18.19
Paragraph Meaning	16.16	22.63	16.57
Vocabulary	21.20	20.31	20.46
Spelling	9.10	12.81	8.50
Word Study	34.32	41.68	29.46
Arithmetic	25.28	36.31	25.11
Gilmore Accuracy	19.75(4)	22.00(4)	23.80(5)
Gilmore Rate of Reading	45.25(4)	71.00(4)	70.40(5)
Phonetically Regular Words	8.75(4)	10.25(4)	6.20(5)
Gates Word Test	10.25(4)	13.00(4)	12.80(5)
Karlsen Phonemic	10.00(4)	14.50(4)	12.20(5)
Pintner General Ability	39.38	41.63	38.88

(4) Random sample, four students tested
(5) Ramdom sample, five students tested

RESEARCH TEAM #3

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	75.45	75.64	76.60
Phonemes	29.60	25.54	30.71
Capital Letters	19.88	17.76	21.39
Lower Case Letters	12.66	13.47	15.30
Total Letters	28.52	29.71	34.28
Learning Rate	7.47	8.72	8.46
Pattern Copy	10.95	11.52	12.19
Identical Forms	14.69	20.92	20.55
Word Meaning	9.82	6.96	9.22
Metropolitan Listening	10.34	9.32	10.62
Matching	9.40	8.12	7.18
Numbers	13.91	11.64	13.14
Copying	8.00	8.44	5.88
Alphabet	8.78	8.54	9.81
Total Metropolitan Test	59.04	52.36	55.88
Detroit Word Recognition	0	3.00(1)	3.00(1)

(1) two students tested

POST-TEST -- MEAN SCORES

Pupil Absences	11.65	11.12	10.51
Reading Attitude	19.95	16.48	14.44
Word Reading	25.50	23.16	20.37
Paragraph Meaning	24.50	23.00	19.29
Vocabulary	21.29	21.88	20.62
Spelling	12.28	13.00	12.55
Word Study	41.95	40.12	36.81
Arithmetic	41.33	35.60	43.88
Gilmore Accuracy	19.75(2)	27.00(3)	25.40(3)
Gilmore Rate of Reading	36.00(2)	61.20(3)	65.40(3)
Phonetically Regular Words	11.50(2)	14.40(3)	7.20(3)
Gates Word Test	16.25(2)	19.40(3)	13.80(3)
Karlsen Phonemic	11.50(2)	17.40(3)	10.80(3)
Pintner General Ability	44.00	41.44	42.22

(2) Random sample, four students tested
(3) Random sample, five students tested

RESEARCH TEAM #4

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	76.77	75.27	76.00
Phonemes	27.58	29.14	31.43
Capital Letters	23.26	21.95	23.32
Lower Case Letters	17.57	17.04	18.96
Total Letters	38.85	35.92	40.31
Learning Rate	9.37	7.74	8.60
Pattern Copy	15.22	11.68	12.06
Identical Forms	20.63	19.92	23.26
Word Meaning	10.12	11.00	10.90
Metropolitan Listening	9.80	9.85	10.32
Matching	7.85	7.37	6.07
Numbers	14.48	13.85	13.87
Copying	9.35	8.14	7.37
Alphabet	12.06	11.00	12.33
Total Metropolitan Tests	61.90	61.22	59.41
Detroit Word Recognition	4.16(1)	0	8.83(1)

(1) six students tested

POST-TEST -- MEAN SCORES

Pupil Absences	19.93	16.55	28.38
Reading Attitude	16.77	16.85	16.28
Word Reading	23.45	23.75	22.62
Paragraph Meaning	18.77	22.32	20.51
Vocabulary	23.61	24.82	22.48
Spelling	12.06	13.14	13.82
Word Study	40.96	38.14	38.00
Arithmetic	47.32	39.00	37.06
Gilmore Accuracy	23.60(2)	21.00(2)	24.20(2)
Gilmore Rate of Reading	43.80(2)	57.40(2)	72.60(2)
Phonetically Regular Words	16.40(2)	7.00(2)	10.80(2)
Gates Word Test	18.00(2)	10.80(2)	16.80(2)
Karlsen Phonemic	20.20(2)	11.60(2)	18.80(2)
Pintner General Ability	43.06	41.03	41.65

(2) Random sample, five students tested

RESEARCH TEAM #5

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	74.75	75.92	77.64
Phonemes	16.20	25.66	18.00
Capital Letters	16.52	23.68	19.46
Lower Case Letters	11.57	19.12	15.11
Total Letters	27.37	41.40	33.03
Learning Rate	5.95	8.48	6.19
Pattern Copy	8.29	9.11	8.25
Identical Forms	13.34	11.74	19.19
Word Meaning	7.60	9.38	7.53
Metropolitan Listening	8.34	9.30	8.40
Matching	6.68	4.90	7.66
Numbers	10.60	11.46	10.63
Copying	6.00	9.73	9.70
Alphabet	8.04	12.26	10.66
Total Metropolitan Test	47.00	55.92	54.60
Detroit Word Recognition	0	4.25(1)	3.66(2)

(1) four students tested
(2) three students tested

POST-TEST -- MEAN SCORES

Pupil Absences	19.83	19.51	16.10
Reading Attitude	20.65	18.70	22.46
Word Reading	19.75	19.50	18.22
Paragraph Meaning	16.91	16.16	17.41
Vocabulary	17.50	20.11	19.16
Spelling	8.30	10.80	9.93
Word Study	33.25	33.57	35.32
Arithmetic	28.20	34.73	35.51
Gilmore Accuracy	15.80(3)	16.80(3)	20.60(3)
Gilmore Rate of Reading	60.40(3)	47.20(3)	57.20(3)
Phonetically Regular Words	10.40(3)	6.60(3)	3.20(3)
Gates Word Test	14.40(3)	11.60(3)	9.40(3)
Karlsen Phonemic	10.40(3)	7.00(3)	7.60(3)
Pintner General Ability	33.04	38.03	35.20

(3) Random sample, five students tested

RESEARCH TEAM #6

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	75.64	74.72	76.12
Phonemes	35.88	23.27	28.80
Capital Letters	24.83	21.85	24.00
Lower Case Letters	19.54	15.70	19.55
Total Letters	42.89	35.50	39.12
Learning Rate	10.71	8.90	10.00
Pattern Copy	9.15	9.77	10.18
Identical Forms	14.46	33.54	19.52
Word Meaning	10.78	9.72	8.88
Metropolitan Listening	9.22	8.86	7.96
Matching	9.50	6.22	10.08
Numbers	12.53	12.31	13.64
Copying	7.76	7.36	8.83
Alphabet	12.71	10.09	12.60
Total Metropolitan Test	60.96	53.59	61.24
Detroit Word Recognition	0	0	0

POST-TEST -- MEAN SCORES

Pupil Absences	14.60	9.72	9.52
Reading Attitude	19.60	17.28	20.40
Word Reading	26.00	25.13	24.20
Paragraph Meaning	24.25	26.00	25.28
Vocabulary	24.85	24.73	21.52
Spelling	12.00	17.36	15.92
Word Study	42.92	42.40	45.00
Arithmetic	44.37	44.54	41.56
Gilmore Accuracy	33.00(1)	21.75(2)	35.20(1)
Gilmore Rate of Reading	64.00(1)	66.00(2)	89.20(1)
Phonetically Regular Words	23.20(1)	5.75(2)	17.60(1)
Gates Word Test	23.20(1)	12.50(2)	24.20(1)
Karlsen Phonemic	22.60(1)	11.25(2)	23.80(1)
Pintner General Ability	38.42	38.40	39.56

(1) Random sample, five students tested
(2) Random sample, four students tested

RESEARCH TEAM #7

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	75.67	75.63	75.16
Phonemes	37.63	31.16	21.25
Capital Letters	23.00	23.34	15.40
Lower Case Letters	16.93	19.80	11.81
Total Letters	37.60	41.43	26.16
Learning Rate	9.10	8.68	6.73
Pattern Copy	9.57	12.00	8.30
Identical Forms	18.10	12.92	12.95
Word Meaning	15.05	14.06	13.28
Metropolitan Listening	9.31	8.73	8.92
Matching	7.21	8.62	6.47
Numbers	12.68	12.83	11.32
Copying	8.47	7.33	7.52
Alphabet	11.10	12.50	8.76
Total Metropolitan Tests	63.84	63.80	55.96
Detroit Word Recognition	5.33(1)	5.40(2)	0

(1) six students tested
(2) five students tested

POST-TEST -- MEAN SCORES

Pupil Absences	9.57	11.71	7.40
Reading Attitude	16.31	18.17	19.52
Word Reading	19.84	26.53	19.68
Paragraph Meaning	14.94	26.23	18.20
Vocabulary	18.31	21.76	17.80
Spelling	6.38	15.55	11.48
Word Study	35.89	40.13	37.45
Arithmetic	37.44	38.39	31.70
Gilmore Accuracy	17.50(3)	31.80(4)	23.20(4)
Gilmore Rate of Reading	57.25(3)	72.80(4)	49.60(4)
Phonetically Regular Words	10.00(3)	16.80(4)	9.80(4)
Gates Word Test	13.75(3)	20.00(4)	14.20(4)
Karlsen Phonemic	12.25(3)	20.80(4)	10.80(4)
Pintner General Ability	40.63	41.27	36.80

(3) Random sample, four students tested
(4) Random sample, five students tested

RESEARCH TEAM #8

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	76.50	74.90	76.08
Phonemes	19.50	24.20	18.22
Capital Letters	18.57	17.84	15.58
Lower Case Letters	13.78	13.38	11.41
Total Letters	29.11	30.16	26.54
Learning Rate	7.82	8.26	9.40
Pattern Copy	9.00	7.26	9.26
Identical Forms	45.93	20.40	19.08
Word Meaning	8.31	8.96	8.56
Metropolitan Listening	9.62	8.32	9.13
Matching	7.12	6.30	7.34
Numbers	12.87	12.50	12.04
Copying	8.00	7.46	6.45
Alphabet	8.31	9.96	8.50
Total Metropolitan Tests	54.25	53.07	50.95
Detroit Word Recognition	4.00(1)	0	0

(1) five students tested

POST-TEST -- MEAN SCORES

Pupil Absences	14.43	17.96	9.25
Reading Attitude	19.86	18.03	17.52
Word Reading	21.88	21.80	19.00
Paragraph Meaning	19.72	16.86	17.90
Vocabulary	21.27	18.23	19.81
Spelling	14.22	13.56	11.50
Word Study	39.88	37.56	35.22
Arithmetic	29.22	38.96	35.33
Gilmore Accuracy	22.25(2)	18.40(3)	15.00(2)
Gilmore Rate of Reading	66.00(2)	63.80(3)	48.75(2)
Phonetically Regular Words	18.75(2)	10.00(3)	2.50(2)
Gates Word Test	20.50(2)	13.20(3)	9.25(2)
Karlsen Phonemic	19.50(2)	10.60(3)	6.75(2)
Pintner General Ability	37.83	38.03	39.00

(2) Random sample, four students tested
(3) Random sample, five students tested

RESEARCH TEAM #9

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	75.69	78.03	78.06
Phonemes	27.30	27.11	24.61
Capital Letters	22.09	20.00	20.36
Lower Case Letters	16.95	15.13	16.04
Total Letters	37.07	32.60	33.22
Learning Rate	8.61	9.92	8.66
Pattern Copy	10.16	11.22	11.03
Identical Forms	19.04	15.81	20.17
Word Meaning	10.33	9.77	8.66
Metropolitan Listening	9.91	10.66	9.37
Matching	7.58	10.00	9.14
Numbers	15.08	14.11	13.55
Copying	9.28	8.85	8.88
Alphabet	12.04	12.65	11.51
Total Metropolitan Tests	63.72	65.59	61.51
Detroit Word Recognition	12.20(1)	0	0

(1) five students tested

POST-TEST -- MEAN SCORES

Pupil Absences	11.16	7.53	14.85
Reading Attitude	17.40	18.66	17.41
Word Reading	29.24	27.22	25.00
Paragraph Meaning	26.68	26.03	22.72
Vocabulary	23.68	23.44	21.96
Spelling	11.40	16.30	15.31
Word Study	42.68	42.67	40.34
Arithmetic	43.68	37.67	29.82
Gilmore Accuracy	25.40(2)	26.60(2)	23.60(2)
Gilmore Rate of Reading	87.20(2)	66.80(2)	65.20(2)
Phonetically Regular Words	18.40(2)	19.00(2)	9.60(2)
Gates Word Test	24.20(2)	21.20(2)	15.20(2)
Karlsen Phonemic	20.60(2)	19.20(2)	13.60(2)
Pintner General Ability	38.45	40.00	39.06

(2) Random sample, five students tested

RESEARCH TEAM #10

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	77.18	74.76	74.65
Phonemes	25.66	20.64	21.92
Capital Letters	21.69	20.36	21.00
Lower Case Letters	18.00	16.47	17.09
Total Letters	36.92	36.16	34.65
Learning Rate	9.44	8.24	7.76
Pattern Copy	9.07	8.47	9.17
Identical Forms	12.60	12.91	14.08
Word Meaning	7.92	9.12	9.37
Metropolitan Listening	8.88	8.58	8.81
Matching	6.70	6.83	7.07
Numbers	11.88	12.33	12.00
Copying	7.40	7.68	6.53
Alphabet	11.33	10.70	11.14
Total Metropolitan Tests	53.70	54.62	53.57
Detroit Word Recognition	11.33(1)	17.00(2)	9.00(3)

(1) three students tested
(2) two students tested
(3) four students tested

POST-TEST -- MEAN SCORES

Pupil Absences	15.00	11.11	9.96
Reading Attitude	15.03	15.60	16.50
Word Reading	23.88	20.57	21.28
Paragraph Meaning	23.92	18.53	19.28
Vocabulary	19.37	21.80	21.67
Spelling	12.30	11.50	12.66
Word Study	36.62	33.46	35.21
Arithmetic	33.92	33.53	31.17
Gilmore Accuracy	21.20(4)	22.40(4)	24.80(4)
Gilmore Rate of Reading	51.40(4)	66.00(4)	64.80(4)
Phonetically Regular Words	7.80(4)	8.00(4)	9.00(4)
Gates Word Test	12.60(4)	14.40(4)	14.80(4)
Karlsen Phonemic	13.20(4)	14.00(4)	13.80(4)
Pintner General Ability	36.14	36.95	38.36

(4) Random sample, five students tested

RESEARCH TEAM #11

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	77.14	75.28	76.66
Phonemes	44.42	38.90	37.78
Capital Letters	25.55	24.22	23.54
Lower Case Letters	24.16	20.55	20.36
Total Letters	48.09	43.14	41.57
Learning Rate	15.90	12.85	12.50
Pattern Copy	14.90	8.80	9.73
Identical Forms	57.52	16.85	19.26
Word Meaning	13.76	11.33	11.26
Metropolitan Listening	14.28	9.42	9.93
Matching	12.42	9.76	9.93
Numbers	22.33	16.52	13.93
Copying	10.00	10.04	6.93
Alphabet	15.04	13.80	13.06
Total Metropolitan Test	87.85	71.23	65.06
Detroit Word Recognition	38.00(1)	11.71(2)	0

(1) eighteen students tested
(2) seven students tested

POST-TEST -- MEAN SCORES

Pupil Absences	13.05	7.85	8.26
Reading Attitude	17.11	18.55	17.26
Word Reading	31.83	27.94	26.46
Paragraph Meaning	31.38	30.72	26.20
Vocabulary	29.64	27.05	23.13
Spelling	17.17	17.77	14.66
Word Study	48.05	44.22	41.53
Arithmetic	55.72	47.11	48.00
Gilmore Accuracy	41.33(3)	31.25(4)	25.50(4)
Gilmore Rate of Reading	90.00(3)	100.75(4)	97.75(4)
Phonetically Regular Words	28.00(3)	14.75(4)	21.00(4)
Gates Word Test	30.66(3)	18.50(4)	22.75(4)
Karlsen Phonemic	33.66(3)	21.25(4)	25.50(4)
Pintner General Ability	51.05	45.62	46.46

(3) Random sample, three students tested
(4) Random sample, four students tested

RESEARCH TEAM #12

PRE-TEST -- MEAN SCORES

	ITAA	LAA	BRA
Age	77.79	74.78	76.50
Phonemes	37.60	38.27	34.26
Capital Letters	22.15	21.21	24.04
Lower Case Letters	18.45	17.31	20.26
Total Letters	38.43	37.04	40.88
Learning Rate	11.56	11.31	9.36
Pattern Copy	13.12	10.39	11.03
Identical Forms	16.25	17.86	20.26
Word Meaning	11.12	11.30	11.42
Metropolitan	10.54	9.56	9.96
Matching	10.25	9.30	10.03
Numbers	15.50	13.43	14.61
Copying	10.25	9.95	8.76
Alphabet	11.12	11.04	12.15
Total Metropolitan Tests	67.12	64.17	66.96
Detroit Word Recognition	22.00(1)	10.25(2)	0

(1) seven students tested
(2) eight students tested

POST-TEST -- MEAN SCORES

Pupil Absences	8.29	7.08	8.16
Reading Attitude	18.00	17.54	17.40
Word Reading	28.75	26.52	27.48
Paragraph Meaning	28.04	22.52	29.64
Vocabulary	24.79	24.56	24.84
Spelling	16.62	14.47	16.54
Word Study	43.50	44.13	43.68
Arithmetic	47.16	45.30	45.56
Gilmore Accuracy	32.80(3)	26.50(4)	30.80(3)
Gilmore Rate of Reading	86.60(3)	81.75(4)	82.40(3)
Phonetically Regular Words	26.00(3)	19.25(4)	16.60(3)
Gates Word Test	25.40(3)	19.25(4)	18.60(3)
Karlsen Phonemic	27.80(3)	22.50(4)	22.00(3)
Pintner General Ability	42.41	42.39	42.26

(3) Random sample, five students tested
(4) Random sample, four students tested